

### SUPPORT FOR AMENDMENTS

The claims have been amended for clarity. Support can be found in the claims as originally filed. Additional support for Claims 1, 4, and 11 can be found in the specification at points listed below:

- Claim 1: original Claim 1 & page 4, lines 1-3;
- Claim 4: page 4, lines 8-24, page 11, line 8 (Example 1), & Fig. 1; and
- Claim 11: page 5, line 23 through page 7, line 30.

Claims 21-26 are newly added. Support can be found at points in the specification, listed below:

- Claim 21: page 5, lines 26-30;
- Claim 22: page 7, lines 12-15;
- Claim 23: Table 2 (Example 9);
- Claim 24: page 7, lines 23-30;
- Claim 25: page 7, lines 16-22; and
- Claim 26: page 7, line 31 through page 8, line 10.

Withdrawn Claim 17 depends, ultimately, on Claim 1. As such, this claim should be rejoined and allowed with the elected claims. See, *e.g.* MPEP § 824.04(b).

No new matter has been added.

### REMARKS/ARGUMENTS

The present claims relate to pyrogenically produced silicon dioxide powders having the following characteristics:

- a specific surface area of between 5 and 600 m<sup>2</sup>/g;
- a specific dibutyl phthalate absorption of less than or equal to 1.2 g dibutyl phthalate/100 g SiO<sub>2</sub> per m<sup>2</sup> of specific surface area;

- and a specific thickening effect of less than 15 mPas per m<sup>2</sup> of specific surface area, wherein said powder has a carbon content of less than 500 ppm and a chloride content of less than 20 ppm.

The rejection of claims 1-16 and 18-19 under 35 U.S.C. § 103(a) in view of United Kingdom Patent 2,044,738 (**Schwarz et al.**) in view of U.S. Patent 5,976,480 (**Mangold et al.**) is respectfully traversed. These references disclose production of silica and pyrogenic silica, processes for the production thereof and use, respectively. However, these references do not disclose pyrogenic silicon dioxide powders that have a lower chloride content (*i.e.* less than 20 ppm) and processes of making the same because silicon halides (*e.g.* SiCl<sub>4</sub>) are used as a starting material in these references.<sup>1</sup>

The presently claimed pyrogenic silicon dioxide powders have a chloride content of less than 20 ppm and can be made from, *e.g.* non-halogenated starting materials such as tetramethoxysilane (TMOS), tetraethoxysilane (TEOS), or a combination thereof. As shown in Table 2 of the present application, reproduced below,<sup>2</sup> the examples of the presently claimed powders in the specification consistently have a small chloride content:<sup>3</sup>

TABLE 2

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Physical-chemical values of the silicon dioxide powders from examples 1 to 14

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| Example   | Bl. 1<br>[m <sup>2</sup> /g] | DBP<br>number<br>[x 100 g] | Spec.<br>DBP<br>number<br>[m <sup>2</sup> /g] | Thickening<br>[mPas] | Spec.<br>thickening<br>[mPas] | Comp.<br>bulk<br>density<br>[g/l] | Spec.<br>comp.<br>bulk<br>density<br>[g/l] x [m <sup>2</sup> /g] | pH   | C<br>[ppm] | Cl<br>[ppm] |
|-----------|------------------------------|----------------------------|-----------------------------------------------|----------------------|-------------------------------|-----------------------------------|------------------------------------------------------------------|------|------------|-------------|
| 1         | 200                          | 275                        | 1.1                                           | 1920                 | 9.6                           | 24                                | 4800                                                             | 4.24 | <100       | <13         |
| 2         | 129                          | 146                        | 1.1                                           | 170                  | 8.9                           | 35                                | 3518                                                             | 4.36 | <100       | <10         |
| 3         | 163                          | 98                         | 0.6                                           | 830                  | 5.1                           | 30                                | 4890                                                             | 4.38 | <100       | <10         |
| 4         | 330                          | 314                        | 1.0                                           | 2220                 | 6.7                           | 19                                | 6270                                                             | 3.98 | <100       | <10         |
| 5         | 196                          | 125                        | 0.6                                           | 1680                 | 8.4                           | 26                                | 5096                                                             | 4.05 | <100       | <13         |
| 6         | 109                          | 73                         | 0.7                                           | 690                  | 6.3                           | 42                                | 4578                                                             | 4.53 | <100       | <10         |
| 7         | 99                           | 110                        | 1.1                                           | 1325                 | 13.4                          | 50                                | 4950                                                             | 4.22 | <100       | <10         |
| 8         | 130                          | 95                         | 0.3                                           | 740                  | 8.7                           | 15                                | 4550                                                             | 4.13 | <100       | <10         |
| 9         | 191                          | 191                        | 1.0                                           | 1590                 | 8.3                           | 21                                | 4911                                                             | 4.00 | <100       | <14         |
| Comp. ex. |                              |                            |                                               |                      |                               |                                   |                                                                  |      |            |             |
| 10        | 208                          | 320                        | 1.6                                           | 3100                 | 15.1                          | nd*                               | nd                                                               | 4.17 | <100       | <13         |
| 11        | 198                          | 280                        | 1.4                                           | 3050                 | 15.4                          | nd                                | nd                                                               | 4.09 | <100       | <10         |
| 12        | 199                          | 346                        | 1.7                                           | 3230                 | 16.2                          | 17                                | 3383                                                             | 4.09 | <100       | 80          |
| 13        | 131                          | 66                         | 2.4                                           | 1880                 | 14.1                          | 19                                | 2480                                                             | 4.17 | <100       | 44          |
| 14        | 92                           | 233                        | 2.0                                           | 2805                 | 30.8                          | 24                                | 2184                                                             | 4.23 | <100       | 83          |

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\*nd = not determined

<sup>1</sup> See Page 1, L. 17-31 of **Schwarz et al.** and Col. 1, L. 20-30, Examples 1 & 2, and Table 2 of **Mangold et al.**

<sup>2</sup> Reproduced from U.S. Patent Application Publication 2006/0201647 A1

<sup>3</sup> At most 14 ppm. See Examples 1-9.

Conversely, those powders made from silicon tetrachloride ( $\text{SiCl}_4$ ) as the starting material have a much greater chloride content (at least 44 ppm).<sup>4</sup> This disparity in chloride content results from the starting material used to make the powders, and thus the high chloride content is what is expected for the powders described in **Schwarz et al.** and **Mangold et al.** In addition, the use of silicon tetrachloride in Comparative Examples 12-14 requires an additional process step to remove resulting hydrochloric acid residues, and the chloride content is *still* higher than that presently claimed.<sup>5</sup> Therefore, one of skill in the art would not produce silica powders having a low chloride content based on the disclosures of these references.

Accordingly, the rejection is no longer tenable and should be withdrawn.

The rejection of Claims 4-6 under 35 U.S.C. § 112, second paragraph, and the objection to Claim 15 are obviated by appropriate amendment to the claims. Accordingly, the rejection and the objection are no longer tenable and should be withdrawn.

Applicants submit that the application is now in condition for allowance, and early notification of such action is earnestly solicited.

Respectfully submitted,

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<sup>4</sup> See Comparative Examples 12-14.

<sup>5</sup> See paragraph on Page 11, L. 18-23 of present specification.